

EVALUATION OF PRELIMINARY DFIRMS

ISSUED FOR
MADISON, ST. CLAIR, AND MONROE COUNTIES

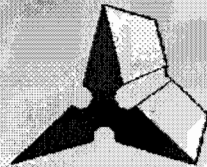
PREPARED FOR:

Southwestern Illinois
Flood Prevention Initiative

SOUTHWESTERN ILLINOIS
FLOOD PREVENTION DISTRICT COUNCIL

September 11, 2009

PREPARED BY



Juneau Associates, Inc., P.C.

CONSULTING ENGINEERS AND LAND SURVEYORS

IN ASSOCIATION WITH



Hoelscher Engineering, P.C.



OATES ASSOCIATES

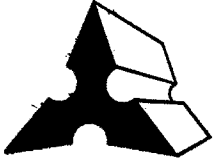


**THOUVENOT, WADE
& MOERCHEN, INC.**

EXHIBIT

8

tabbies



Juneau Associates, Inc., P.C.

CONSULTING ENGINEERS AND LAND SURVEYORS

- ☐ 2100 State Street, P.O. Box 1325 • Granite City, Illinois 62040 • 618/877-1400 • Fax 618/452-5541
- ☒ 100 North Research Drive • Edwardsville, Illinois 62025 • 618/659-0900 • Fax 618/659-0941
- ☐ 13610 Barrett Office Drive, Suite 206 • St. Louis, Missouri 63021 • 314/856-0060 • Fax 314/909-1331

September 11, 2009
Job No. E-095500

Mr. Les Sterman, Chief Supervisor
Construction and the Works
Southwestern Illinois Flood Prevention District Council
104 United Drive
Collinsville, Illinois 62234

Re: Evaluation of Preliminary FEMA DFIRM's
Madison, St. Clair and Monroe Counties

Dear Mr. Sterman:

In accordance with our contract with the Southwestern Illinois Flood Prevention District Council dated August 11, 2009 and submitted to you on behalf of Juneau Associates, Inc., P.C. and our project team consisting of Hoelscher Engineering, P.C., Oates Associates and Thouvenot, Wade & Moerchen, Inc., please find attached a report detailing the results of the tasks outlined in the our proposal. To assist with the review of the details of the letter report, please refer to the Executive Summary portion of the report.

We look forward to meeting with you and the Council members to discuss our report and answer specific questions which may arise from your review of the attached report.

Respectfully submitted,

JUNEAU ASSOCIATES, INC., P.C.

Charles E. Juneau, P.E., P.L.S.

CEJ/rak

Enclosure

EVALUATION OF PRELIMINARY DFIRMS ISSUED FOR MADISON, ST. CLAIR AND MONROE COUNTIES

TABLE OF CONTENTS

	<u>Page</u>
1.0 EXECUTIVE SUMMARY.....	1
2.0 SCOPE OF WORK.....	4
3.0 INTRODUCTION.....	5
4.0 STREAM GAGE DATA EVALUATION.....	6
5.0 HYDROLOGIC METHODOLOGIES.....	8
5.1 APPEAL POTENTIAL RANKING CRITERIA.....	10
6.0 IMPACT OF INDEPENDENT STUDIES.....	12
7.0 COMMUNITY INTERACTION & COORDINATION.....	13
8.0 RECOMMENDED AREAS FOR FURTHER STUDY.....	14
9.0 CONCLUSION.....	16

LIST OF APPENDICES

APPENDIX A

-
1. Table 1 – Stream Gage Data Evaluation
 2. Table 2 – Hydrologic Methodologies Evaluation Results for Madison County
 3. Table 3 – Hydrologic Methodologies Evaluation Results for Monroe County
 4. Table 4 - Hydrologic Methodologies Evaluation Results for St. Clair County
 5. Table 5 – Identified Independent Study Areas which Contradict FIS or DFIRM

APPENDIX B

-
1. Meeting Minutes – Juneau Associates and Madison County, IL
 2. Meeting Minutes – Juneau Associates and Glen Carbon, IL
 3. Summary of Hoelscher Engineering Coordination with O'Fallon, IL
 4. Meeting Minutes – Hoelscher Engineering and St. Clair County, IL
 5. Meeting Minutes – Hoelscher Engineering and Fairview Heights, IL
 6. Meeting Minutes – Oates Associates and Collinsville, IL
 7. Meeting Minutes – Oates Associates and Illinois Department of Transportation
 8. Meeting Minutes – Oates Associates and Edwardsville, IL
 9. Meeting Minutes – TWM, Inc. and East St. Louis, IL
 10. Meeting Minutes – TWM, Inc. and Monroe County, IL
 11. Meeting Minutes – TWM, Inc. and Belleville, IL
 12. Telephone Conversation Log – TWM, Inc. and Valmeyer, IL
 13. Telephone Conversation Log – TWM, Inc. and Centreville, IL

APPENDIX C

-
1. Sample letters developed for FPD's use to distribute to communities within AR Zone
 2. Sample letters developed for FPD's use to distribute to communities outside of AR Zone

1.0 EXECUTIVE SUMMARY

A comprehensive review and evaluation of the readily available documentation correlated to the preliminary Flood Insurance Study (FIS) and Digital Flood Insurance Rate Maps (DFIRM) for Madison, Monroe and St. Clair County was completed. This review and evaluation was completed by a team of four engineering firms, each of which has extensive experience in hydrologic¹ and hydraulic² engineering and a vast knowledge of the local drainage and watershed issues. The documentation involved in the review and evaluation process included the data from all U.S. Geological Survey stream gage stations located in subject counties, the hydrologic methods used for each of the watershed evaluations for the streams listed in the respective FIS and any readily available engineering studies completed by the four private consulting engineering firms involved in this study. This work was completed to determine and identify specific inaccuracies within the FIS or DFIRMs which would justify an appeal to the Federal Emergency Management Agency (FEMA) to avoid the issuance of inaccurate or outdated data indicated on the preliminary maps. Without identifying these areas, the inaccurate mapping would require local officials to mandate the purchase of flood insurance in areas that are truly outside the floodplain or conversely, provide a false sense of security with respect to locations which are truly in the floodplain but the mapping indicates otherwise. Contact and discussion with communities regarding the FEMA mapping process and the impact that the information on the preliminary DFIRMs will have on individual communities was also accomplished as part of this study.

The evaluation of the stream gage data concluded that there are significant deviations in peak discharge values from the values presented in the FIS compared to the data developed from the individual stream gages. Data at six (6) of the 8 gages showed the 100-year peak discharge at the stream location based on the gage data to be up to 140% less than the same discharge value for the same event listed in the FIS. The use of a smaller discharge value than listed in the FIS at the subject locations, as supported by the gage evaluation, would significantly narrow the floodplain and decrease the base flood elevations.

¹ The science dealing with the properties, distribution, and circulation of water on and below the earth's surface and in the atmosphere.

² The science dealing with the flow and conveyance of fluids, principally water.

The original hydrologic methodologies used to develop peak discharge values on all seventy-seven (77) stream reaches listed in the applicable FIS were evaluated. A system to rank the accuracy of the data used to develop the applicable peak discharge value was used to identify the stream reaches where data was suspect. This process identified 66% of all the stream locations in the three (3) preliminary FIS which met the generalized ranking criteria established in this report such that an appeal would be reasonable. The preliminary FIS for St. Clair County had 28 locations, the pre-FIS for Madison County had 22 locations and the pre-FIS for Monroe had only 1 location. ***The practical end result of placing inaccurate FIS results onto the highly publicized DFIRM platform overlooks the fact of the inaccurate data because of presentation of the data on the DFIRM will appear impressive.***

An evaluation of the readily available hydrologic and/or hydraulic studies completed by any of the four engineering firms involved in this study was provided to identify areas on any of the three (3) preliminary county DFIRMs where the presented data does not correlate well with the results of the respective independent engineering study. A total of 28 independent studies were identified which contradicted the information presented on the applicable preliminary DFIRM. From this list of 28, four (4) areas were identified as having significant potential with respect to the FEMA mapping appeal process based on the extent and impact to existing or potential future development.

In order to coordinate efforts of this report with the three Counties and the various communities, the DFIRM Review Team has met with community leaders to advise them of the work for the Southwestern Illinois Flood Prevention District Council (FPD Council) and inform them of the appeal process. Many of the communities were in the process of reviewing the preliminary DFIRMs when contacted by the DFIRM Review Team. Often, communities had already contacted one of the individual DFIRM Review Team companies to perform a review of their community's maps. However, in some instances the community had not begun a review process and therefore was informed of the process and the work being provided for the FPD Council. The services agreement for this report did not include contacting all communities within the three counties. It is our understanding that it is the FPD Council's intent to inform the other communities through written correspondence. As such, the FPD Review Team provided the FPD Council sample letters for that purpose.

A comprehensive review of all the data collected and evaluated for this study was completed in an effort to identify areas of streams where, within the time constraints dictated by the FEMA mapping appeal process, new detailed engineering studies could be completed. This data could then be submitted to FEMA as part of a package demonstrating the lack of accuracy of the information presented on the preliminary DFIRMs and therefore, validating an appeal of the DFIRMs. For Madison County, the reach of Canteen Creek within Maryville and Collinsville and the reach of Tributaries E, F and G (in the vicinity of Wood River) are recommended to substantiate errors on the Madison County DFIRM. It should be noted that detailed two-foot interval topographic mapping is available for the majority of Canteen Creek within Madison and St. Clair Counties. Within St. Clair County, reaches on Canteen Creek and Richland Creek have been identified where additional detailed engineering studies would likely verify substantial errors on the St. Clair County DFIRM. Because the results of recent detailed engineering studies completed by Hoelscher Engineering for preparation of the Monroe County DFIRM incorporated acceptable data and properly applied analytical techniques, there are no areas on the Monroe County DFIRM which are being recommended for further restudy.

Based on the overall evaluation of the documentation reviewed as part of this study, there is significant evidence that provides a basis to consider submitting an official appeal to FEMA regarding the preliminary FIS and DFIRMs for Madison and St. Clair Counties. This evidence includes:

1. Significant contradictions between peak discharge values listed in the preliminary FIS and the values determined from historic records at pertinent stream gages.
2. The use of archaic rainfall data to determine the discharge values listed in the preliminary FIS.
3. Hydrologic analyses in the preliminary FIS to determine discharge values which use statewide or regional data determined from multiple-regression analyses instead of watershed specific data.
4. The lack of incorporating the results of numerous independent detailed engineering studies associated with Letters of Map Change (LOMC), all of which were previously approved by FEMA but were not incorporated into the preliminary DFIRMs.

2.0 SCOPE OF WORK

In a letter dated July 10, 2009, Madison, St. Clair and Monroe Counties and the incorporated communities of the Metro-east area within Illinois were provided notification from the Federal Emergency Management Agency (FEMA) detailing the process related to the National Flood Insurance Program (NFIP) requirements for review and acceptance of recently released preliminary Flood Insurance Rate Maps (FIRM) prepared by FEMA for each county or community. This process is a legislatively mandated procedure which provides the opportunity for comment to FEMA regarding the information presented on the maps. Comments, concerns and objections with the information presented on the FIRMs, per FEMA criteria, are separated into two distinct categories, protests and appeals. A protest, referred to as a "comment" by FEMA Region V, is an objection that does not involve the proposed base flood elevations (BFE)³ shown on the FIRM or in the associated Flood Insurance Study (FIS) report materials. Comments usually involve changes to items such as roads, road names, corporate limits and floodplain boundary delineations. An appeal to a FIRM is a much more serious objection involving the base flood elevations presented on the respective FIRM. Because of the implications to floodplain boundaries, flood insurance risk zones and ultimately the flood insurance premiums, an appeal requires significant technical support documentation such as detailed topographic mapping, watershed modeling and hydraulic analyses of the pertinent reach of the stream.

This study has been undertaken to evaluate the preliminary DFIRMs and FIS for Madison, St. Clair and Monroe Counties to determine and establish objections to these documents which could constitute reasonable grounds for an appeal of the individual county preliminary DFIRMs. Juneau Associates, in association with Hoelscher Engineering, Oates Associates and TWM, Inc. (herein referred to as the DFIRM review team) has incorporated as part of this study, meeting with leaders of the larger communities in the Metro-east area to determine the status of their community's review, inform them of the NFIP appeal process and advise of FPD Council's efforts. In an attempt to ensure the information was coordinated, face to face meetings with the community leaders were determined to be the most efficient means given the specific time constraints.

If an appeal process is to be pursued, FEMA has stipulated that submittal of all the requisite support documentation for the appeal must be provided to FEMA by October 19, 2009.

³ The height of flood waters associated with the 1% annual chance flood.

3.0 INTRODUCTION

The National Flood Insurance Program, administered through the Federal Emergency Management Agency (FEMA), has been established to provide communities with the primary tools necessary to prevent loss of life and property due to flooding. The two major tools used by community officials to implement floodplain management include a Flood Insurance Study (FIS) and the corresponding Flood Insurance Rate Map (FIRM). The FIRMs represent the summary and presentation of analytical results developed within the FIS. An accurate and up-to-date FIRM should be used as the basis for all decisions related to floodplain management within a community. If the information presented on a FIRM is inaccurate or out of date, then the decisions being made on a routine basis by the community representative, who are intending to provide a sound basis for floodplain management, would be flawed and the decisions could be placing individuals and structures in harms way or needlessly preventing development in an area incorrectly delineated as floodplain. To prevent the occurrence of either circumstance, it is paramount that the FIRM represent the most up-to-date and accurate information feasibly available. In fact, FEMA represents that the preliminary FIRMs recently disseminated, and once finalized, will provide the best available information related to flood potential.

It is widely recognized in the floodplain management community and acknowledged by FEMA that much of the supporting analytical documentation used to develop the FIRMs nationwide (including Illinois) is twenty (20) to thirty (30) years old and that the techniques and methodologies originally used are no longer accepted as reasonable engineering practice. Furthermore, the underlying basis for the development of the base flood elevation information delineated on the preliminary FIRMs is the peak flow information for the 100-year flood event. Data obtained in the last 20 to 30 years applied through current engineering standards of practice will likely show significant changes to the peak flow information which will translate to inaccurate based flood elevation information as presented on the preliminary FIRMs that were recently disseminated.

The preliminary FIRMs are being presented to communities for review and comment. Therefore, because of enormous implications to the floodplain management issues, a review and evaluation of the pertinent technical aspects related to the data presented in the preliminary FIS and FIRMs for Madison, Monroe and St. Clair Counties has been completed by a team of engineering consultants with expertise in the field of water resources engineering. The results of

that review and evaluation are presented in this report. Additionally, discussions with community leaders of the larger municipalities in the Metro-east area were undertaken to ensure communities were aware of the implications of the FEMA remapping project and that each community understood the Flood Prevention District Council's role in providing assistance to the communities.

4.0 STREAM GAGE DATA EVALUATION

The U.S. Geological Survey (USGS) publication entitled "Estimating Flood-Peak Discharge Magnitudes and Frequencies for Rural Stream in Illinois" was used as a referenced to identify the applicable stream gage stations in Madison, Monroe and St. Clair Counties. This document details the data collected by the USGS at stream gage stations throughout Illinois and provides typical water resources related statistical analysis results for each of the gage sites such as station flow-frequency data. There may be additional stream locations in the three counties included in this study where entities other than the USGS have collected stream flow data but generally, if the data has not been obtained and processed by the USGS, the reliability of such data would be suspect.

A total of ten (10) stream gage sites were identified in Madison, Monroe and St. Clair Counties. Six locations were located in St. Clair County and four locations were identified in Madison County. There were no sites in Monroe County where the USGS reported collecting stream flow data. Table 1, Appendix A, provides the pertinent data related to each of the ten stream gage sites. As shown by the data presented in that table, there are five active gage sites that continue to obtain flow data. Two of the sites are in St. Clair County and three are located in Madison County. The other five gage sites are no longer actively recording flow data and have, on average, been inactive for approximately the last 30 years. Therefore, the more recent larger flood events have not been included in the data recorded by these inactive gages. Also, the period of record for these inactive gage sites varies from 12 to 50 years. It should be noted that based on standard statistical analytical methods, relatively short periods of record introduce the potential for significant prediction error for larger flood events such as the 100-year event.

For the data at each of the individual ten (10) stream gage sites, a detailed Log-Pearson Type III (LP III) probability distribution analysis was implemented using PEAKFQ, software recommended and supported by the U.S. Geological Survey. The PEAKFQ software was

applied to the period of record data for each of the ten stream gage sites. The results of this statistical analysis for the 10, 50, 100 and 500-year events are shown in Table 1.

To enable a comparison of the peak discharge values determined from the LP III statistical analysis of the gage records and the peak flows presented in the preliminary FIS, the discharge values presented in the preliminary FIS were adjusted to correlate to the drainage area at the respective gage location. The areal correction factor (cfs/sq.mi.) was calculated as the ratio of the peak discharge value as listed in the preliminary FIS divided by the drainage area at the location where the peak discharge value was determined. This factor was then applied to the peak discharge value listed in the FIS such that the adjusted peak discharge value would correlate to the drainage area of the respective stream at the location of the gage. This areal correction method is a commonly accepted approach used to enable a comparison of peak discharge values at individual locations on the same stream within the same watershed provided there are no hydraulic structures which would regulate/control flow. Each of the individual adjusted peak flow values determined using this approach is presented in Table 1. It should be noted that two of the ten stream gage locations could not be used for comparison purposes due to the stream locations not being included in the preliminary FIS and therefore, only eight gage locations were available for comparative evaluation purposes.

The results of the comparative evaluation indicate that there are significant deviations in peak discharge values between the values determined from the individual gage records and the peak discharge values based on the information presented in the preliminary FIS at six of the eight stream gage locations where comparisons are possible. Furthermore, five of the six gage locations which verify discrepancies in the peak discharge values as listed in the FIS, are active gages. The period of record for these gages varies from 38 to 68 years. The only gage of the six gages of interest that is no longer an active gage is located on the Kaskaskia River at New Athens. Interestingly, this location is the only location out of the six which indicates that the FIS data is underestimating the 100-year peak discharge value. Overall, the trend of the gage data indicates that the data in the preliminary FIS for Madison and St. Clair Counties predicts 100-year peak discharge values significantly greater than the gage values. This implies that the floodplain delineated on the preliminary DFIRM exaggerates the limits of the floodplain such that flood insurance requirements may be being mandated outside the actual floodplain. A summary of this trend is provided in the following table for each of the six applicable gage locations. Generally, deviations of the magnitude for peak discharges shown in the following table and as

calculated based on the respective gage record data would be just cause for serious concern regarding the accuracy of the discharge values. Based on the results of the evaluation in this part of the study, the discharge values presented in the preliminary FIS on the streams and locations noted below are very suspect. Due to the historic and actual recordation of flow at stream gage locations, the results of the stream gage evaluation provide a solid basis for questioning the accuracy of the results presented in the respective preliminary Flood Insurance Studies for the applicable stream locations.

SUMMARY OF GAGE VS. FIS PEAK FLOW DATA

County	Stream and Location	100-Year Peak Flow Difference in FIS Discharge/Gage Value (%)
Madison	Cahokia Creek @ Edwardsville	140%
Madison	Indian Creek @ Wanda	21%
Madison	Silver Creek near Troy	47%
St. Clair	Silver Creek near Freeburg	23%
St. Clair	Kaskaskia River @ New Athens*	-28%
St. Clair	Richland Creek near Hecker	85%

* Not an active gage location

5.0 HYDROLOGIC METHODOLOGIES

A review of the respective preliminary FIS for Madison, Monroe and St. Clair County was completed to identify and evaluate the engineering methodologies used to develop the 100-year peak discharge values at the noted locations in the FIS. These discharges are the basis for the determination of the base flood elevations and mapping shown on the applicable preliminary Flood Insurance Rate Maps. This review incorporated all the stream locations listed in the three individual county-wide FIS. A total of seventy-seven (77) locations were included in the evaluation; forty-two (42) locations in Madison County, eight (8) locations in Monroe County and twenty-seven (27) locations in St. Clair County. For each individually identified stream reach noted in the respective county preliminary FIS, the analytical hydrologic method (such as peak discharge regression analysis, unit hydrograph techniques or flow frequency data) used to determine the peak 100-year discharge value was identified (if presented in the FIS). Also identified, and shown in Tables 2, 3 and 4 of Appendix A, are the technical publications used for determining the 100-year rainfall amount; the year in which the hydrologic study used as a basis to develop the base flood elevations shown on the FIRM was completed; and the entity

responsible for the hydrologic study results. Three (3) tables attached to this letter report present this data by respective county.

An evaluation of the data for each individual location was completed in an effort to objectively rank the accuracy of the results of the hydrologic analyses used to develop the base flood elevations presented on the preliminary FIRMs. A ranking system with a sliding scale from 0 to 5 was developed for this purpose. A value of 0 for the system correlates to a determination that there is very little basis to support an appeal of the information presented in the respective FIS or FIRM. At the opposite end of the ranking system, a value of 5 correlates to a determination that there is a definitive basis to support an appeal of the information presented in the respective FIS or FIRM. The purpose of the ranking system was to provide a rational approach to identify and determine the most critical locations which should be used as support documentation with respect to a potential appeal process related to the preliminary FIS and FIRMs.

Tables 2, 3 and 4 show the overall results for the evaluation process. Table 2 presents the data for Madison County. Table 3 presents the results for Monroe County and Table 4 provides the information related to St. Clair County. Within each of these tables, and for each of the stream locations, a general verbal basis for an appeal process corresponding to the denoted rank is provided. Stream locations where an appeal value of at least 4 (very strong basis for appeal) has been assigned, indicate identified egregious technical errors capable of causing significant inaccuracy in the prediction of the 100-year discharge and base flood elevation. Most of the technical errors identified in this evaluation relate to rainfall values and associated hydrologic calculations which would tend to significantly underestimate the 100-year peak discharge value. The use of improper rainfall amounts has a significant adverse impact to the results of hydrologic analyses. The rainfall data used for hydrologic predictive purposes during the period in which the majority of the analyses presented in the preliminary FIS were completed came from the National Weather Service (NWS) documents commonly referred to as "TP-40" and "TP-49". The NWS data was developed based on a nationwide set of rainfall gages and was completed in the early 1960's. Completed in 1989, the Illinois State Water Survey (ISWS) through a comprehensive network of rain gages within the State of Illinois developed a detailed set of state specific rainfall frequency data. This data is commonly referred to as Bulletin 70 or Circular 172 and is the widely accepted engineering standard in Illinois. The rainfall amounts predicted by the NWS documents do not utilize the best available data and other studies have determined that the NWS 100-year rainfall values are 17% to 27% less than

the values determined and presented in the ISWS documentation (varies due to specific storm duration). The direct result of using larger rainfall values to develop the base flood elevations is that the base flood elevation should be higher than presented on the preliminary DFIRM. This apparent discrepancy with the results of the gage data evaluation, which indicated the base flood elevations on the preliminary DFIRM are too high, is further evidence that major portions of the data in the preliminary FIS and DFIRM, as discussed in the following paragraphs, is inaccurate.

Fifty-one (51) of the seventy-seven (77) locations evaluated were assigned an appeal potential value of at least 4. The distribution of the fifty-one locations with an appeal potential value of at least 4 is twenty-eight (28) locations in St. Clair County, twenty-two (22) locations in Madison County and one (1) location in Monroe County. The fifty-one locations with an appeal potential value of at least 4 represents 66% of the stream locations presented in the three preliminary Flood Insurance Studies evaluated. There were five (5) locations which were ranked with an appeal potential value of 5 (definitive basis for appeal). All five of these locations are within St. Clair County.

The conclusion from the evaluation of the analytical hydrologic methods presented in the three preliminary Flood Insurance Studies for Madison, Monroe and St. Clair Counties indicates that the majority of the data presented in the documents is sufficiently suspect with respect to inaccurately predicting the 100-year peak discharge and respective base flood elevations. Therefore, questioning the validity of the Madison and St. Clair FIS on this basis would be reasonable. However, since the evaluation of the Monroe County documentation indicates only one location with an appeal potential value of at least 4, it is unlikely that an appeal of the entire FIS for Monroe County would be feasible.

5.1 APPEAL POTENTIAL RANKING CRITERIA

Per FEMA criteria, an appeal must be based on data that show the proposed BFE's (Base Flood Elevations) to be *scientifically or technically incorrect*.

Scientifically Incorrect implies that the methodology used in the determination of the BFE is inappropriate or incorrect, or the assumptions made as part of the methodology are inappropriate or incorrect. An appeal that is based on the BFE being scientifically incorrect would therefore contend that the use of a different methodology or different assumptions would produce more accurate results.

Technically Incorrect implies one of the following:

- The methodology was not applied correctly
- The methodology was based on insufficient or poor quality data
- The application of the methodology included indisputable mathematical or measurement errors
- The methodology did not account for the effects of physical changes that have occurred in the floodplain

A ranking system was established based on a sliding scale from 0 to 5, where "0" represents little or no basis for an appeal and "5" represents a definitive basis for an appeal. Using this approach and the FEMA definitions of *scientifically or technically incorrect*, each number rank in the scale is generally described in the following table.

RANK	BASIS OR CRITERIA FOR APPEAL
0	Recent study completed using ISWS rainfall/distribution methods and reasonable unit hydrograph technique or gage analysis; state of the art computer modeling (HMS, RAS, UNET) used for development of peak discharges and BFEs; good topographic information available.
1	Recent hydrologic study completed with reasonable results but detailed topographic data not likely used to develop BFEs; typically rural areas where little to no flood damage to homes or structures occur.
2	Gage data used to develop peak discharges but period of record or gage information has not been validated; data does not include up to date information.
3	Outdated rainfall/distributions used with questionable unit hydrograph techniques (Clark or Snyder which are based on national or regional parameters).
4	Outdated rainfall/distributions (TP-40 and TP-49) used in conjunction with predecessor (HEC-1 or HEC-2) to the current state of the art modeling techniques.

RANK	BASIS OR CRITERIA FOR APPEAL
5	Outdated rainfall/distributions used in FIS; approximate methods used to develop peak discharges such as statewide or regional regression approaches; large changes in BFEs from previous study to preliminary mapping; hydraulic impacts from major physical features not included in FIS; urbanized areas where accurate BFEs are critical to establish flooding damages.

Generally, the majority of the areas where there is a reasonable basis for an appeal involve a scientifically incorrect developed base flood elevation.

6.0 IMPACT OF INDEPENDENT STUDIES

Detailed hydrologic and/or hydraulic studies developed and prepared by private consulting engineering firms are an excellent source of information to use as a check against the Flood Insurance Study (FIS) analyses results which have been presented on the preliminary DFIRMs. Many of the base flood elevations and floodplain delineations presented in the recently released preliminary DFIRMs are based on FIS analyses completed decades ago using outdated techniques, methodologies and data. The results from engineering studies using state of the art methodologies and data completed within the last several years provide an excellent opportunity to check the validity of the information in the preliminary FIS or DFIRMs.

Each of the DFIRM Engineering Team firms has reviewed and compiled a summary of the pertinent detailed engineering studies each has completed in the last several years which contradict the information presented in either the FIS or DFIRM. Each of the identified independent studies incorporated a review and approval by the Illinois Department of Natural Resources, Office of Water Resources (state agency responsible for flow certification) or the Federal Emergency Management Agency. The result of the review and evaluation of the independent studies is presented in Table 5 provided in Appendix A.

The documentation listed in Table 5 indicates that there is significant information developed by independent engineering firms which can be used to scrutinize the validity of the preliminary FIS and DFIRM information. The four engineering firms tasked with preparing the data in Table 5 represent a small cross-section of engineering firms in the Metro-east area. Therefore, it is likely that more firms have additional studies which could be used to evaluate the accuracy of the FIS and DFIRM data. However, given the limitation of time and resources associated with this evaluation, the four firms have identified a total of 28 independent studies

which have sufficient detail to be used for a DFIRM appeal process. The total number of studies identified includes 16 areas in Madison County, 1 area in Monroe County and 11 areas in St. Clair County. The majority of these studies involve data which could readily be copied and compiled for submittal to FEMA.

Based on the data generated for this portion of the report, four (4) areas have been identified which have a significant basis for demonstrating the inaccuracies of the respective preliminary DFIRM. These areas are listed below and were chosen due to the extent and impact that the identified contradictions between the independent study results and the information presented on the preliminary DFIRMs would have to existing and potential future development.

**AREAS WITH GREATEST APPEAL POTENTIAL OF PRE-DFIRM DATA
BASED ON PREVIOUS INDEPENDENT STUDY RESULTS**

COUNTY	COMMUNITY	DFIRM PANEL	STREAM IMPACTED
St. Clair	O'Fallon	206E,210E,230E	Engle & Rock Spring Cr.
St. Clair	Swansea	125E	Trib. to Richland Cr.
Madison	Granite City	327D and 329D	Dobrey Slough
Madison	Collinsville	362D	Canteen Cr.

7.0 COMMUNITY INTERACTION & COORDINATION

It is specified in the services agreement with the FPD Council that Juneau Associates and other team members contact municipalities with a population of greater than 15,000 to be briefed on the municipality's review and response to the FEMA maps. Although this effort has been provided, many of the communities had already contacted team members regarding issues associated with review of the preliminary maps for their communities. Regardless of whether the team member had previously discussed issues regarding the map review, the communities were contacted to advise of the FPD Councils work.

Due to the ongoing services provided to many of the municipalities by members of the DFIRM Review Team, the following communities were contacted to advise of this work with the FPD Council:

Alton	Belleville	Bethalto
Centreville	Collinsville	East St. Louis

Edwardsville	Fairview Heights	Glen Carbon
Granite City	Highland	Madison
O'Fallon	Pontoon Beach	Valmeyer
Venice		

Madison, St. Clair and Monroe Counties were also contacted in addition to the Illinois Department of Transportation. Meeting minutes are provided in Appendix B for additional information.

8.0 RECOMMENDED AREAS FOR FURTHER STUDY

Tables 2 through 5 in Appendix A provide an overview of all the areas which have been identified as having a reasonable basis for appeal based on either the data and/or engineering methodology used to generate the results in the preliminary Flood Insurance Study (FIS) and Digital Flood Insurance Rate Map (DFIRM) or recently completed engineering studies which significantly contradict the information presented in the preliminary FIS and DFIRM. A review of the streams with a ranking of 4 or 5 in Tables 2 through 4 and the four (4) areas with the greatest potential for appeal identified in the "Impact of Independent Studies" section of this report was completed in an effort to establish several areas which, with the completion of appropriate further detailed engineering studies, would likely verify the inaccuracies of the subject area of the DFIRM.

The review process to establish these areas included a review of each of the stream reaches on the respective DFIRM panel which were identified as having the potential for appeal and establishing if the reach was rural or urban. If a stream reach which had been identified as having inaccurate data was located in an urban area, it was given a higher priority with respect to potential for appeal. Using this as a guide, many of the identified reaches were eliminated from consideration since they are located in a rural area. Furthermore, several of the larger streams or rivers were eliminated for further consideration with respect to additional study, even though there were identified inaccuracies, due to the extreme amount of work that would be needed to restudy the stream or river and the limited amount of time to complete a restudy and submit it to FEMA for an appeal.

The DFIRM data for streams in Madison County tributary to major water courses such as the East Fork Wood River, West Fork Wood River and Wood River are significantly influenced

by the flood stages of these large water courses. Unfortunately, accurate flood stages on the large streams, known as initial boundary conditions, are required to ensure accurate development of flood stages on the tributary streams. Since the DFIRM data for all three of these larger streams is suspect, the results from a restudy of the tributary streams become less reliable. Therefore, in an effort to avoid this problem, stream reaches independent of the hydrologic response from these three streams and in accordance with the urban guidelines discussed above, Canteen Creek and streams denoted as Tributaries E, F and G are considered the most reasonable streams to be used for a restudy. Specifically, the reach of Canteen Creek in the vicinity of Maryville and Collinsville are recommended for additional study. The DFIRM panel numbers associated with the recommended reach of Canteen Creek for additional study are 344, 354, 358, 361, 362 and 363. The DFIRM panels showing the recommended reaches for restudy of Tributaries E, F and G are 64 and 177.

There are numerous stream reaches in St. Clair County where restudy using state of the art engineering techniques, current data and accurate field information will provide results likely to enable an appeal of the preliminary DFIRM data. Among the streams identified for such a purpose using the constraints described above were Ash, Canteen, Catawba, Loop, Ogles, Richland Creeks and Wolf Branch. Of the seven (7) streams identified with a strong potential with respect to the appeal process, two streams are recommended; Richland Creek and Canteen Creek. Because Canteen Creek is also recommended as one of the streams in Madison County which could be restudied as part of the supporting documentation for a potential appeal process, it is reasonable to include the reaches of the stream in St. Clair County in the recommendation. The applicable reach of the stream as delineated on the preliminary DFIRM panels recommended for restudy associated with Canteen Creek in St. Clair County are 44 and 65. Richland Creek meanders its way through St. Clair County from near O'Fallon to Smithton where its drainage area is approximately 56 square miles. The reach of Richland Creek recommended for restudy, bound at the upstream end by Route 161 and the downstream end by Route 13, encompasses significant development. The preliminary DFIRM panels correlating to this reach of the stream are numbers 213 and 215. It is critical to note that the base flood elevations for this reach of Richland Creek reported in the 2003 FIS were, at locations, approximately 4 feet higher than the base flood elevations listed in the preliminary FIS. The basis for the change in the preliminary DFIRM elevations is the result of a study using approximate methods to determine discharge values. Therefore, a recommendation for a restudy of this reach using detailed methodologies and accurate data is justifiable.

With the exception of a small reach of Rueck Creek located in a rather rural area, the streams in Monroe County listed in the preliminary FIS and DFIRM have been studied with appropriate engineering methodologies using current data and therefore, the flood elevation information presented on the DFIRMs for Monroe County is relatively reasonable. Therefore, it is recommended that none of the stream reaches shown in Monroe County preliminary FIS be considered for restudy with respect to being involved in a potential DFIRM appeal process.

9.0 CONCLUSION

Based on the overall evaluation of the documentation reviewed as part of this study, there is significant evidence that provides a basis to consider submitting an official appeal to FEMA regarding the preliminary FIS and DFIRMs for Madison and St. Clair Counties. This study has verified that there are obvious and numerous areas on the preliminary DFIRMs which are very suspect with respect to being scientifically accurate. Therefore, if the currently presented preliminary DFIRMs become effective with the base flood elevations as shown and they become the official floodplain regulatory tool for each community, there will be numerous areas within communities that will be susceptible to poor decisions related to flood potential and damages.

Given the time constraints with respect to the FEMA map review process, it is not feasible to develop sufficient technical data to appeal all the locations where the base flood elevations are suspect. However, sufficiently detailed studies could be completed for several of the stream reaches identified above and submitted as evidence that there is reason to more closely evaluate the accuracy of large areas of the DFIRMs.

While not a specific scope of work for this study, the engineering personnel responsible for this report find it vital that the following ancillary FEMA flood insurance mapping issues be stated:

- The data presented in the FEMA FIS and DFIRMS is represented, by FEMA, as the "best available information" related to base flood elevations. Based on the discussion in this report, for many areas in the Metro-east area, **it is not**.
- Engineers are typically required by other agencies, e.g. Illinois Department of Natural Resources, to use FEMA documentation as a basis for any design which is located in or close to a floodplain. If this data is inaccurate, then the design of

private, municipal and state projects may be over or under designed, therefore it is imperative that the information presented in the FIS and on the DFIRM, be the "best information available". Considering that map revisions are not frequently provided, and that it has been roughly 27 years since the current effective date of the Madison County maps, all revised maps should be provided with the most accurate information available **and not be distributed as just a digital replication of the outdated maps that currently exist.**

- State regulatory agencies default to the FEMA flood profile information in the FIS as the standard tool for engineering design. However in some cases, it has been determined that differences exist between the FIS profile and the DFIRMs. The use of DFIRMs that do not correctly represent the data defined on the FIS profile will inaccurately represent the flood plain that is ultimately used by the general public and easily accessible through FEMA's web site.
- In speaking with many of the municipalities represented by the engineering firms involved with this study, and other private engineering consultants, there is a consistent pattern of difficulty and unreasonable time delay in obtaining engineering documentation from FEMA that was used as the basis for the FIS or FIRM.
- The majority of the Letter of Map Changes (LOMC) that have been issued since the previous effective date of the FIRMs, have not been included on the preliminary DFIRMs. A detailed accounting of the specific number is beyond the scope of work for this study, but it should be noted that it is very unreasonable to not include information from these LOMCs. **Communities, businesses and individuals have previously invested significant resources to obtain FEMA approval for these flood plain changes, only to have them disregarded during this remapping process.**
- The new DFIRMs will be state of the art; attractive to the eye, easy to read, use and modify. They will certainly be an improvement over the old paper maps. However, the enormous underlying problem with the "attractive" DFIRMs is that much of the data used to develop the map appears to be significantly inaccurate

and will be compounded by the use of very accurate GIS applications. There will most assuredly be a perception that the maps are "state of the art", however, the application and use of inaccurate data will follow.

Results of PEAKFQ Flow Frequency Analyses - Gage Records										Adjusted FIS Recurrence Interval Flow Values (cfs) *				Differences
Recurrence Interval Flow Values (cfs)					Gage Records					Adjusted FIS Recurrence Interval Flow Values (cfs) *				
	County	D.A. (mi ²)	Yrs. of Record	Last Year of Record	10-yr.	50-yr.	100-yr.	500-yr.	10-yr. ²	50-yr. ²	100-yr. ²	500-yr. ²	10-yr.	
ary No. 2 Near Carpenter, IL ¹	Madison	0.45	25	1980	408	675	795	1086	-	-	-	-	10-yr.	
ardsville, IL	Madison	212	40	2008	7935	9559	10090	11050	10351	19456	24248	32778	30%	
la, IL	Madison	36.7	68	2008	4275	7025	8350	11800	4807	7950	10076	13127	12%	
ay, IL	Madison	154	42	2008	8503	12320	13760	16690	10191	17324	20202	26016	20%	
Case 3:10-cv-00919-J														
eyville, IL	St. Clair	22.6	46	1984	4383	7285	8681	12300	4300 ³	7000 ³	8400 ³	11000 ³	-2%	
Trib. Near Collinsville, IL	St. Clair	1.62	14	1972	562	1089	1362	2112	715 ⁴	1155 ⁴	1348 ⁴	1780 ⁴	27%	
issa, IL ⁵	St. Clair	72.4	12	1982	4303	7079	8432	12000	-	-	-	-	-	
eburg, IL	St. Clair	464	38	2008	11210	15760	17440	20860	12077 ⁶	18505 ⁶	21427 ⁶	28245 ⁶	8%	
w Athens, IL	St. Clair	5181	50	1971	56710	93380	110500	153300	47236 ⁴	69411 ⁴	79853 ⁴	107996 ⁴	-17%	
Hecker, IL	St. Clair	129	39	2008	11560	17480	20140	26630	20300 ⁷	31500 ⁷	37300 ⁷	45800 ⁷	76%	

ed to the correlating gage drainage area by determining the ratio of flow per square mile of drainage area:

tment

St. Clair County FLS Data adjustment

Location	D.A. (mi ²)	10-yr.	50-yr.	100-yr.	500-yr.	Flooding Source and Location	D.A. (mi ²)
Little Indian Creek Confluence	221.2	10800	20300	25300	34200	Little Canteen Creek - Approx. 1500 ft. U.S. Circle Dr.	5.89
Adjustment Ratios (cfs/mi ²)		48.82	91.77	114.38	154.61	Adjustment Ratios (cfs/mi ²)	
Adj. Comparable Flows	212	10351	19456	24248	32778	Adj. Comparable Flows	1.62
Silver Creek - at confluence with Kaskaskia River	39.7	5200	8600	10900	14200	Silver Creek - at confluence with Kaskaskia River	476.4
Adjustment Ratios (cfs/mi ²)		130.98	216.62	274.56	357.68	Adjustment Ratios (cfs/mi ²)	
Adj. Comparable Flows	36.7	4807	7950	10076	13127	Adj. Comparable Flows	464
Fork Silver Creek Confluence	256.9	17000	28900	33700	43400	Kaskaskia River - Upstream of confluence of Richland Creek	5210
Adjustment Ratios (cfs/mi ²)		66.17	112.50	131.18	168.94	Adjustment Ratios (cfs/mi ²)	
Adj. Comparable Flows	154	10191	17324	20202	26016	Adj. Comparable Flows	5181

NOTES:

- used for this flooding source.
- Charges for, **Cahokia Creek**, Canteen Creek, East Fork Silver Creek, East Fork Wood River, Honeycut Branch, s Creek, Paddock Creek, Sherry Creek, **Silver Creek**, Silver Creek Tributary No. 1, Silver Creek Tributary No. 2, Fork, Tributary E, Tributary F, Tributary G, Tributary X, Tributary Z, West Fork Wood River, and Wood River in the City of Alton, the Village of East Alton, and unincorporated areas of Madison County were estimated by applying synthetic unit hydrograph HEC-1 rainfall-runoff mathematical model developed by the COE (Reference 33). Parameters for Clark unit hydrographs and functions were determined from regional relationships developed from an optimization study of observed floods at fourteen the vicinity of Madison County. Rainfall data provided by the National Weather Service (Reference 18) were used to develop 2-percent-annual-chance synthetic storm events. Channel and reservoir routings for the flood hydrographs were performed uls method (Reference 34).

REACH	ANALYTICAL HYDROLOGIC METHODS	RAINFALL	YEAR OF STUDY	STUDY CONTRACTOR	APPEAL POTENTIAL *	
oute 111	HEC-1/regionally optimized unit graph parameters	TP-40	1978	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
ison County	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
prated Madison County	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
e	HEC-1 adjusted with gage data	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
fluence of Black Cr.	HEC-1/regionally optimized unit graph parameters	TP-40	1978	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
d R. to Kent St.	HEC-1/Gray's unit graph method	TP-40	1977	IL Dept. of Natural Resources	4	Outdated rainfall data; Unit:
Renken Rd.	HEC-1/undetermined unit graph method	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
er Cr. to Ludwig Rd.	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
Fk Wood R. to 2000 ft.	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
Fk Wood R. to 11,600 ft.	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
a with Cahokia Cr. and Moro	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
ldock Cr. to 450 ft. upstream	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region:
eam of IL 157 to 3800 ft.	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
's Br. to confluence with Trib	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
th Trib 5 and 5b to 700 ft.	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
th Trib 5 and 5a to 3700 ft.	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
's Br. to confluence with Trib	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
th Trib 9 and 9b to 150 ft.	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
th Trib 9 and 9a to 500 ft.	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
Br to 100 ft. downstream of	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
's Br to 9500 ft. upstream of	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
's Cr to 1250 ft. upstream of	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
enthal Cr to 3950 ft.	HEC-HMS/SCS unit graph & loss methodology	ISWS Circular 172	2005	IL Dept. of Natural Resources	0	Good study
Cr. Dr.	HEC-HMS/SCS unit graph & loss methodology	Bulletin 70	2003	FSM	0	Good study

MISSISSIPPI COUNTY AND INCORPORATED AREAS

REACH	ANALYTICAL HYDROLOGIC METHODS	RAINFALL	YEAR OF STUDY	STUDY CONTRACTOR	APPEAL POTENTIAL*	
enthal Cr. to 1350 ft. Ave.	HEC-HMS/SCS unit graph & loss methodology	Bulletin 70	2003	FSFM	0	Good study
enthal Cr. to 50 ft. upstream	HEC-HMS/SCS unit graph & loss methodology	Bulletin 70	2003	FSFM	0	Good study
enthal Cr to 1150 ft.	HEC-HMS/SCS unit graph & loss methodology	Bulletin 70	2003	FSFM	0	Good study
enthal Cr. to 1700 ft.	HEC-HMS/SCS unit graph & loss methodology	Bulletin 70	2003	FSFM	0	Good study
Madison County	Stream/rainfall gage	Gage data	2004	U.S. Army Corps of Engineers	0	2004 UMRSFFS
th Cahokia Cr. to Goshen Rd.	HEC-HMS/SCS unit graph & loss methodology	Bulletin 70	2003	FSFM	0	Good study
oney Cr. to 750 ft. upstream	HEC-HMS/SCS unit graph & loss methodology	Bulletin 70	2003	FSFM	0	Good study
oney Cr. to 1850 ft. upstream	HEC-HMS/SCS unit graph & loss methodology	Bulletin 70	2003	FSFM	0	Good study
th Silver Cr. to Missouri	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region
th E Fk Wood R. to 3450 ft. line	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region
th E Fk Silver Cr. to 4750 ft. Rd.	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region
stream Unnamed Rd. to 50 d Rd.	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region
stream of confluence with stream of confluence with	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region
th Trib F to 50 ft. upstream	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region
th W Fk Wood R. to 2200 ft. RR crossing upstream of	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region
th Indian Cr. to 200 ft. / Lane	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region
th E Fk Wood R. to 2200 ft. Lane	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region
Mississippi R. to confluence	HEC-1/regionally optimized unit graph parameters	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data; Region
for appeal						
for appeal						

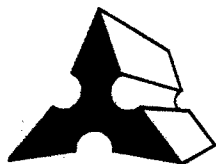
REACH	ANALYTICAL HYDROLOGIC METHODS	RAINFALL	YEAR OF STUDY	STUDY CONTRACTOR	APPEAL POTENTIAL*
Upstream of Bluff Rd. to Rd.	HEC-1 using SCS techniques	Bulletin 70 - 2 hour critical storm duration	1999	Hoelscher Engineering	1
	HEC-1 w/ Clark UH & exponential loss rates	TP-40	1997	U.S. Army Corps of Engineers	3
with Carr Cr. To a point .: upstream	Unit hydrograph with HEC-1	Bulletin 70 - 2 hour critical storm duration	1999	Hoelscher Engineering	1
	HEC-1 w/ Clark UH & exponential loss rates	TP-40	1997	U.S. Army Corps of Engineers	3
nately 0.57 miles y Rd. to Reuck Road	Unit hydrograph with HEC-1	Bulletin 70 - 2 hour critical storm duration	1999	Hoelscher Engineering	1
	HEC-1 w/ Clark UH & exponential loss rates	TP-40	1997	U.S. Army Corps of Engineers	3
with Palmer Cr. to a point uarry Rd.	Unit hydrograph with HEC-1	Bulletin 70 - 2 hour critical storm duration	1999	Hoelscher Engineering	1
	HEC-1 w/ Clark UH & exponential loss rates	TP-40	1997	U.S. Army Corps of Engineers	3
with Palmer Cr. to a point of confluence with Palmer	Unit hydrograph with HEC-1	Bulletin 70 - 2 hour critical storm duration	1999	Hoelscher Engineering	1
	HEC-1 w/ Clark UH & exponential loss rates	TP-40	1997	U.S. Army Corps of Engineers	4
with Carr Cr. to a point 550 Main St.	Unit hydrograph with HEC-1	Bulletin 70 - 2 hour critical storm duration	1999	Hoelscher Engineering	1
	HEC-1 w/ Clark UH & exponential loss rates	TP-40	1997	U.S. Army Corps of Engineers	3
fluence with Richland Cr.	Unit hydrograph with HEC-1	Gage data	1988 FIS	U.S. Army Corps of Engineers	2
1	Stream/rainfall gage	Gage data	2004	U.S. Army Corps of Engineers	0
or appeal					
or appeal					

REACH	ANALYTICAL HYDROLOGIC METHODS	RAINFALL	YEAR OF STUDY	STUDY CONTRACTOR	APPEAL POTENTIAL*	APPE
with Loop Cr. to IL Route 158	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
in St. Clair County	HEC-1/regionally optimized unit graph parameters	TP-40/Gage data	1997	U.S. Army Corps of Engineers	4	Outdated rainfall data; Regional data
with Richland Cr. to 850 ft. upstream southern RR	HEC-1/unspecified unit graph method**	TP-40	1978	U.S. Army Corps of Engineers	4	Outdated rainfall data
with Richland Cr. to 1850 ft. upstream d.	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
stream of Winter Road to 1650 ft. private drive	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
confluence with Engle Cr. Ditch	Rational Method	TP-40	1980	U.S. Army Corps of Engineers	5	Outdated rainfall data and pool hydrologic
d. to confluence with Engle Cr. Ditch	HEC-1/unspecified unit graph method**	TP-40	1980	U.S. Army Corps of Engineers	5	Outdated rainfall data ; LOMR in the per
no longer exists	HEC-1/unspecified unit graph method**	TP-40	1980	U.S. Army Corps of Engineers	5	Outdated rainfall data ; LOMR in the per
with Silver Cr. to 4000 ft. upstream of	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
in St. Clair County	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
with Harding Ditch to 450 ft. Circle Dr.	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
with Silver Cr. to St. Clair Co.	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
with Silver Cr. To 2800 ft. upstream of	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
1 St. Clair Co. boundaries	Stream/rainfall gage	Gage data	2004	U.S. Army Corps of Engineers	0	2004 UMRSFFS
	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
with Silver Cr. to Orlando Place	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
with Ogles Cr. To Lincoln Hwy.	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
with Mississippi R. to confluence with	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
ies above ~ Schleutter-Germaine Rd. boundary to ~ Schleutter-Germaine	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
stream of Forest Blvd. to 700 ft. Alton & Southern RR	ISWS Regression Equations	N/A	2008	IL Dept. of Natural Resources	5	Regional data used for highly urbanized
st. to 1500 ft. upstream of IL 161	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
with Kaskaskia R. to St. Clair Co.	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
	Regional gage frequency analysis	Gage data	1999	U.S. Army Corps of Engineers	4	Gage data incorporates all gaged stream
with Doza Cr. to 3600 upstream of ice	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
ishville RR to 2100 ft. upstream of	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
stream of confluence with Ogles Cr. To stream of the confluence	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
to 5600 ft. upstream of IL Route 15	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data
with Richland Cr. to 150 ft. upstream Rd.	HEC-1/unspecified unit graph method**	TP-40	1979	U.S. Army Corps of Engineers	4	Outdated rainfall data

COMMUNITY	DFIRM PANEL	STREAM IMPACTED	COMMENTS RELATED TO POTENTIAL APPEAL
Long Beach & Vic. Areas	17119C0327D	Long Lake, north of Garden Lane	Extent of Long Lake floodplain on FIS smaller than independent study results indicate
White City	17119C0327D	Ponding area south of Morrison Rd and west of corporate limits	Floodplain on opposite sides of RR tracks on FIS shown at different elevations; equalization pipes exist
vic. areas throughout County			Many new developments are shown in the floodplain regardless of LOMRs issued for to remove them from floodplain
White City	17119C0327D and 329D	Doubry Slough Sewer	Floodplain along approx. 2.5 miles of 48-inch storm sewer not depicted on pre-DFIRM
Incorporated area		Lindenthal Creek	LOMR approved for commercial site @ IL 40 not included on pre DFIRM
Valto	17119C0066D	Rocky Branch, Trib A	Base flood elevation from watershed study for bridge design available
Incorporated area	17119C0380D	Silver Creek, Kirsch Road crossing	Bridge at Kirsch Road not shown on Flood Profile in FIS.
Incorporated area	17119C0120D, 114D	Silver Creek Tributary	Tributary 6 listed as Zone A - flood profile established by hydraulic reports for Illinois 140 from 1989
n	17119C0029D	Rocky Fork Creek	Listed as Zone A - flood profile established by IDNR approved hydraulic report for Pierce Lane over Rock Fork Creek.
nsville	17119C0362D	Canteen Creek	IDNR approved hydraulic model at Mulberry Rd. approx. 2 feet higher than pre-FIS despite nearly identical flow values.
nsville	17119C0342D	Referred to as Judy's Branch	LOMR approved for Maune Development at 1605 Eastport Plaza not included on pre DFIRM
ardsville	17119C0193D, 0191D		LOMRs approved for Gateway Commerce Center not included on pre DFIRM
ardsville	17119C0216D	Mooney Creek (Previously known as Tributary B to Dunlap Lake)	Governors' Parkway over Tributary B to Dunlap Lake pre-FIS Q100 less than 40% of Project Q100
ardsville	17119C0216D	Mooney Creek Tributary 2 (Previously known as Tributary B to Dunlap Lake)	Governors Parkway not included in profiles
ardsville	17119C0216D	Mooney Creek (Previously known as Tributary B to Dunlap Lake)	Mooney Creek referred to as Mooney Creek Tributary 2 north of Willow Creek Drive
ardsville	17119C0193D, 0191D and 0183D	Multiple locations	All of Interstate 255 north of I-270 not included in topography or aerial photography

NOTIFIED INDEPENDENT STUDY AREAS WHICH CONTRADICT PRELIMINARY FIS OR DFI

COMMUNITY	DFIRM PANEL	STREAM IMPACTED	COMMENTS RELATED TO POTENTIAL APPEAL
incorporated area	17163C220E	Loop Creek, north of IL 177	LOMRs approved as part of the Metro Link project not included on pre-DFIRM
nsea	17163C125E	Trib to Richland Cr., Lake Lorraine Branch	No floodplain delineated for highly developed area
view Heights	17163C201E	Ogles Creek, east of the mall	Flow certification and flood elevations from watershed and bridge design model available
h	17163C215E	Richland Creek, south of I-64	Detailed floodway analysis model for Green Mount Lakes apartments using watershed modeling results available
illon	17163C206E, 210E and 230E	Engle and Rock Spring Creeks	LOMR for entire watershed submitted in January 2007 not shown on DFIRM
yville	17163C043E	Little Canteen Creek, west of IL 157	Detailed watershed model results not included on DFIRM
yville	17163C213E	Richland Creek, just upstream of West C St.	LOMR-F obtained for Franklin School project but results not included on DFIRM
incorporated area	17163C295E and 315E	Prairie du Long Creek	Stonehenge Lake Dam watershed modeling results not included on DFIRM
yville	17163C0213E	Richland Creek, Metro Link near Swansea Treatment Plant	FIS study flood elevation is 3' lower than hydraulic report.
incorporated area	17163C0235E	Little Silver Creek, Emerald Mound Grange Rd crossing	Hydraulic report Q100 water surface elevation higher than FIS.
yville	17163C0185E	Schoenburger Creek No. 2, IL 161 crossing	Information available from hydraulic and scour report appears to contradict the flood elevation shown in the FIS study. Bridge not shown on Flood Profile.
incorporated area	#0075	Fountain Creek, Intersection of Bluff Rd & County Hwy No. 6	FIS study flood elevation is approx. 1' higher than project waterway data table.



Juneau Associates, Inc., P.C.
CONSULTING ENGINEERS AND LAND SURVEYORS

☐ 2100 State Street, P.O. Box 1325 • Granite City, Illinois 62040 • 618/877-1400 • 452-5535 • Fax 618/452-5541
☒ 100 North Research Drive • Edwardsville, Illinois 62025 • 618/659-0900 • 659-0800 • Fax 618/659-0941

Meeting Minutes

Project: DFIRM Review
Southwestern Illinois Flood Prevention District
Council
(JAI No E095500)

Date Written: August 20, 2009

Subject: Coordination with Madison County

Attending: Joe Parente, Madison County
Frank Miles, Madison County
Hope Johnson, Madison County
Dave Parizon, Madison County
Pat Morrison, Madison County
Jared Collier, Juneau Associates
Ron Keepes, Juneau Associates

Location: Conference Room
Madison County Administration Building
Edwardsville, Illinois

Meeting Date: August 19, 2009 (9:00 AM)

Discussion:

The meeting was held to discuss Juneau Associates' involvement with review of the DFIRMs and the AR floodzone maps for Southwestern Illinois Flood Prevention District Council (FPD Council) and the communities they provide city engineering services. The following items were discussed:

1. Ron Keepes informed the attendees of Juneau Associates' professional services agreement with the FPD Council to review the accuracy of the revised DFIRMs. Hoelscher Engineering, Oates Associates and TWM, Inc. are providing subconsulting services to Juneau Associates for this work. The services being provided only include review of the DFIRMs for accuracy and will not include any services associated with review of the AR floodzones and the associated developed areas.
2. Madison County is in the process of reviewing the developed/undeveloped areas of the AR flood zones for final submittal to FEMA. Juneau Associates informed the attendees that they are reviewing the developed/undeveloped maps for Granite City, Pontoon Beach, Madison and Venice which were provided by East West Gateway and are making revisions where applicable.
3. Madison County and Juneau Associates have both determined that there are areas of the maps noted as undeveloped that should be indicated otherwise. Pat Morrison informed the attendees that Madison County now has 2009 aerial photography available and that use of more recent photography will impact the accuracy of the maps currently provided.
4. The area currently proposed for development of University Town Center appears to be within an undeveloped AR flood zone and will be impacted by the new maps. Joe Parente advised that he will contact TWM, consultant for the development, to discuss the floodzone impact on the development.
5. Oates Associates will be contacted by Madison County to determine how the new flood zones will impact the proposed developments adjacent to the Collinsville area and how the City of Collinsville will be defining certain areas of the City on the AR maps.
6. Frank Miles advised attendees that Madison County will contact the communities adjacent to Alton to verify those communities will be reviewing the new AR maps provided by East West Gateway.
7. Ron Keepes informed the attendees that Juneau's review of the DFIRMs for the FPD Council will not include review of letters of map changes and suggested that Madison County and the individual communities verify these changes are included on the new maps.

END OF MINUTES

These comments and minutes constitute my understanding of the items discussed and conclusions made during the meeting. Please report any additions, corrections, or omissions to me within ten (10) days.

Minutes were recorded by: Ron Keepes

cc: Attendees



Juneau Associates, Inc., P.C.

CONSULTING ENGINEERS AND LAND SURVEYORS

☐ 2100 State Street, P.O. Box 1325 • Granite City, Illinois 62040 • 618/877-1400 • 452-5535 • Fax 618/452-5541
☒ 100 North Research Drive • Edwardsville, Illinois 62025 • 618/659-0900 • 659-0800 • Fax 618/659-0941

Meeting Minutes

Project: DFIRM Review

Southwestern Illinois Flood Prevention District
Council
(JAI No E095500)

Meeting Date: August 24, 2009 (10:00 AM)

Date Written: September 9, 2009

Subject: Coordination with Village of Glen Carbon

Attending: Will Shashack, Village of Glen Carbon
Jared Collier, Juneau Associates
Ron Keepes, Juneau Associates

Location: Village Hall
Glen Carbon, Illinois

Discussion:

The meeting was held to discuss Juneau Associates' involvement with review of the DFIRMs and the AR floodzone maps for Southwestern Illinois Flood Prevention District Council (FPD Council). The following items were discussed:

1. Ron Keepes informed Will Shashack of Juneau Associates' professional services agreement with the FPD Council to review the accuracy of the revised DFIRMs. Hoelscher Engineering, Oates Associates and TWM, Inc. are providing subconsulting services to Juneau Associates for this work. The services being provided only include review of the DFIRMs for accuracy and will not include any services associated with review of the AR floodzones and the associated developed areas.
2. Will Shashack was not familiar with the AR Zone maps prepared by East West Gateway so Juneau Associates explained the temporary AR zone to him and informed him of the maps. A copy of the maps prepared by East West Gateway for Glen Carbon was presented to him during the meeting.
3. Jared Collier informed Will Shashack that Juneau Associates is currently preparing developed/undeveloped maps for Granite City, Pontoon Beach, Madison and Venice and expects the final maps prepared by Juneau Associates to vary considerably from the original maps. Juneau Associates is defining many parcels as developed when combining contiguous parcels and determining 75% or more of the tracts contains a structure or use, thus allowing the entire area to be classified as such per FEMA guidelines.
4. Will Shashack advised that he expects to hire Juneau Associates to review the AR Zone maps prepared for the Village of Glen Carbon by East West Gateway.
5. The University Town Center project is a development recently proposed in the Village of Glen Carbon that occupies property currently defined as undeveloped on the AR Zone maps prepared by East West Gateway. Juneau Associates will review the AR maps for Glen Carbon and determine whether this property can be classified as developed based on grouping of contiguous tracts.
6. Flood plain associated with Judy's Branch has been indicated on the preliminary DFIRMs. Will Shashack anticipates notifying some of the residents along the creek that the maps are now indicating their property to be in the flood plain and they may be required to purchase insurance.

END OF MINUTES

These comments and minutes constitute my understanding of the items discussed and conclusions made during the meeting. Please report any additions, corrections, or omissions to me within ten (10) days.

Minutes were recorded by: Ron Keepes

cc: Attendees



Juneau Associates, Inc., P.C.
CONSULTING ENGINEERS AND LAND SURVEYORS

☐ 2100 State Street, P.O. Box 1325 • Granite City, Illinois 62040 • 618/877-1400 • 452-5535 • Fax 618/452-5541
☒ 100 North Research Drive • Edwardsville, Illinois 62025 • 618/659-0900 • 659-0800 • Fax 618/659-0941

Meeting Minutes

Project: DFIRM Review

Southwestern Illinois Flood Prevention District
Council
(JAI No E095500)

Meeting Date: September 2, 2009 (3:00 PM)

Date Written: September 9, 2009

Subject: Coordination with City of Alton

Attending: Mayor Tom Hoechst, City of Alton
Phil Roggio, City of Alton
Matt Asselmeier, City of Alton
Ron Keepes, Juneau Associates

Location: Mayor's Office
City Hall
Alton, Illinois

Discussion:

The meeting was held to discuss Juneau Associates' involvement with review of the DFIRMs and the AR floodzone maps for Southwestern Illinois Flood Prevention District Council (FPD Council). The following items were discussed:

1. Ron Keepes informed the attendees of Juneau Associates' professional services agreement with the FPD Council to review the accuracy of the revised DFIRMs. Hoelscher Engineering, Oates Associates and TWM, Inc. are providing subconsulting services to Juneau Associates for this work. The services being provided only include review of the DFIRMs for accuracy and will not include any services associated with review of the AR floodzones and the associated developed areas.
2. Ron Keepes informed the City of Alton that they should provide a review of the preliminary maps to determine whether they agree with the map information and whether all pertinent data given to FEMA has been incorporated in the maps. The City of Alton has currently reviewed the DFIRMs for mapping accuracies but has not reviewed the documents for engineering accuracy. Mayor Hoechst questioned whether the engineering review should be provided by Juneau Associates or one of the DFIRM review members. Ron Keepes recommended the City provide the review with in-house staff or an engineering consultant familiar with the City of Alton and their previous development/infrastructure projects.
3. The City of Alton is currently in the process of preparing the developed/undeveloped maps for submittal to FEMA for the temporary AR Flood Zone. Matt Asselmeier has been preparing those documents.
4. Ron Keepes informed the attendees that Juneau's review of the DFIRMs for the FPD Council will not include review of letters of map changes and suggested that City of Alton verify these changes are included on the new maps.

END OF MINUTES

These comments and minutes constitute my understanding of the items discussed and conclusions made during the meeting. Please report any additions, corrections, or omissions to me within ten (10) days.

Minutes were recorded by: Ron Keepes

cc: Attendees



Engineering
The
Future

Hoelscher Engineering, P. C.

SUMMARY OF HOELSCHER ENGINEERING COORDINATION WITH CITY OF O'FALLON REGARDING FEMA PRELIMINARY FIS AND DFIRM

- Flow certification via IDNR and a corresponding LOMR submittal to FEMA for the majority of the floodplain area (Engle and Rock Spring Creeks) within the municipal boundaries was completed in early 2007. Since that time, FEMA has been working on approving the LOMR. In a March 2009 email from the "Map Mod Team", it was indicated that the LOMR would be issued in April 2009 (to date it has not been issued). The technical aspects have been approved but the mapping contractor indicates that the LOMR will consist of more than 20 new panels and the size of the changes have delayed the inclusion of this information on the preliminary St. Clair maps. Hoelscher continues to push for the results of the LOMR to be included on the final maps.
- At the request of O'Fallon, a comprehensive review of the previously released preliminary maps within the municipal boundaries was completed in July 2008. Based on this review, a set of "red-lined" maps and detailed comments were prepared and provided to FEMA at the July 2008 "Open House".
- August 17, 2009: called and spoke to Jeff Stehman, Building and Zoning Official for the City of O'Fallon regarding the FEMA mapping process. Jeff has been intimately involved with the floodplain regulatory processes in O'Fallon. He asked that Hoelscher follow-up with FEMA regarding their 2007 LOMR related to Engle and Rock Spring Creeks.
- August 17, 2009: spoke with Brett Holthaus, the St. Clair County rep for the FEMA mapping contractor PBS&J, to discuss the LOMR mapping issues which Hoelscher submitted in 2007 and the other "problems" we found with the maps. He indicated that a written response will be provided to our "red-line" map submittal but it would not likely come until after the current 90 day appeal period. Brett indicated that the LOMR issue is under the purview of another entity and could not comment.
- September 2, 2009: Jeff requested that Hoelscher prepare a letter to FEMA formally objecting to the preliminary maps since they did not revise any of the inaccuracies discovered and presented at the July 2008 "Open House" or include the major revisions to the floodplains of Engle and Rock Spring Creeks as shown on the LOMR documentation submitted in January 2007.



Engineering
The
Future

Hoelscher Engineering, P. C.

September 11, 2009

Mr. Mike Mitchell, Director
Department of Building & Zoning
St. Clair County
10 Public Square
Belleville, IL 62220-1623

Re: Preliminary DFIRM Review Meeting Minutes

Dear Mike:

Below are the meeting minutes from our August 6, 2009 DFIRM Review meeting between St. Clair County and Hoelscher Engineering:

Date: August 6, 2009
Location: St. Clair County Courthouse
Attendees: St. Clair County
Mike Mitchell – Director of Building and Zoning
Charles Kofron – GIS Coordinator
Hoelscher Engineering
Gary Hoelscher, PE, CFM

- Hoelscher Engineering was directed to provide a printed set of the Preliminary DFIRMs for the entire county to Mike Mitchell's office.
- Numerous county-wide Preliminary DFIRM review and appeal submittal options were discussed.
- In addition to the Developed / Undeveloped area Map submittals, it was determined that the most cost effective options which could also be completed in the 90 day appeal review period included the following:

1. Topographic Mapping Review and Submittals – Review the St. Clair County 2008 Aerial Topographic Mapping for submittal to FEMA for use in revisions to the St. Clair County Preliminary DFIRM. Submit the 2008 Topographic Mapping and documentation to FEMA along with a detailed comparison of the effects of topographic mapping on the DFIRM mapping at two specific locations. These locations will be based on a cursory review which will identify two locations for which the topographic mapping could significantly revise the Preliminary DFIRM maps.

H o e l s c h e r E n g i n e e r i n g , P . C .

St. Clair County DFIRM Review Meeting Minutes

Page 2 of 3

September 11, 2009

2. Plotting the AR Zone limits - Plotting the AR Zone limits by FEMA versus the Mississippi River 100-year Floodplain Limits as determined from the plot of the Mississippi River 100-year Flood elevation from the 2004 flow frequency study by the U.S. Army Corps of Engineers on the 2008 aerial contour mapping for St. Clair County
3. Letter of Map Revision Review and Submittal –
 - a. RESEARCH AND COMPARISON OF LOMRS. Obtain a copy of the forty-five (45) FEMA issued Letters of Final Determination (LFD) for the LOMRs issued for the unincorporated areas of St. Clair County since the November 5, 2003 FIS. This does not include obtaining or reviewing the technical support documentation for the LOMRs. Compare the list of the LOMRs issued by FEMA to the specific LOMRs referenced in the preliminary St. Clair County FIS which will be used to update the preliminary Flood Insurance Rate Maps (FIRM). Review the LFD for the LOMRs included in the preliminary FIS and comment on the relative impact each will have on the preliminary FIRM. Prepare a written summary of comments.
 - b. REVIEW AND SUMMARY REPORT FOR DATA NOT INCLUDED IN PRELIMINARY FIS. Review each of the other LFDs to determine the significance of the LOMR to determine the relative significance of the impacts to the applicable FIRM. If it is determined by the review that the LOMR could have a significant impact to the FIRM this will be noted. The review in this task will be subjective based on the amount of information contained in the LFD and does not include a review of any technical or engineering LOMR support data. A written summary of the findings from the review process will be prepared. The summary will include for each LOMR reviewed a recommendation regarding whether the LOMR would have a significant impact on the FIRM and why. Also, prepare a ranked list of the LOMRs where detailed review would be beneficial for an appeal process.
 - c. REVIEW OF TECHNICAL DATA. For no more than three of the most critical LOMRs which have been determined will have a significant impact on the FIRM, obtain and review the pertinent technical data. After review, provide a short written summary for each review of the package of technical data for the individual LOMRs incorporating comments related to pertinent issues which would assist in a map appeal process.
 - d. LETTER REPORT. Prepare a written letter report summarizing the findings of items 1 through 3 which could be used in support of a map appeal proceeding.

H o e l s c h e r E n g i n e e r i n g , P . C .

St. Clair County DFIRM Review Meeting Minutes

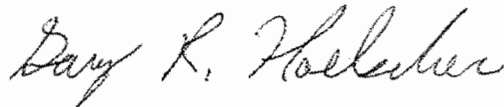
Page 3 of 3

September 11, 2009

If you have any revisions or clarifications, please feel free to contact me at your convenience.

Sincerely,

HOELSCHER ENGINEERING, P.C.

A handwritten signature in cursive script that reads "Gary R. Hoelscher".

Gary R. Hoelscher, PE, CFM

President

GRH/grh



Engineering
The
Future

Hoelscher Engineering, P. C.

September 11, 2009

The Honorable Gail Mitchell
Mayor of the City of Fairview Heights
10025 Bunkum Road
Fairview Heights, IL 62208

Re: Preliminary DFIRM Review Meeting Minutes

Dear Mayor Mitchell:

Below are the meeting minutes from yesterday's DFIRM Review meeting between the City of Fairview Heights and Hoelscher Engineering:

Date: September 10, 2009
Location: Fairview Heights City Hall
Attendees: City of Fairview Heights
Mayor Gail Mitchell
Tim Ahrens, Jr. – Assistant City Engineer
Drew Awesumb – City Administrator

Hoelscher Engineering
Gary Hoelscher, PE, CFM

- The four Preliminary DFIRM Panels were reviewed.
- There are only two significant floodplain reaches and tributaries within the Fairview Heights City Limits: Ogles Creek and Schoenberger Creek.
- The Ogles Creek and tributaries 100-year Floodplain Limits appear to be reasonably accurate.
- The Schoenberger Creek 100-year Floodplain Limits does not appear to affect any known structures.
- The 500-year zones may be outdated and inaccurate but do not affect any areas which have critical structures potential at this point.
- Drew Awesumb believes the City limits look accurate on the maps but will verify within a few days.
- The City limits as shown do not touch the AR zone as defined on the Preliminary DFIRM maps.

11 Executive Drive • Suite 12 • Fairview Heights, IL 62208 • 618.624.8610 • Fax 618.624.8611
2501 Chatham Road • Suite 120 • Springfield, IL 62704 • 217.698.8610 • Fax 217.698.8608
115 North Neil Street • Suite 105 • Champaign, IL 61820 • 217.351.8610 • Fax 217.351.8611
www.hoelscherengr.com

H o e l s c h e r E n g i n e e r i n g , P . C .

City of Fairview Heights DFIRM Review Minutes

Page 2 of 2

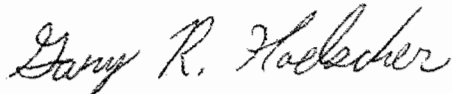
September 11, 2009

- If the City limits are accurate, Fairview Heights does not plan any challenges to the Preliminary DFIRMs at this time.

If you have any revisions or clarifications, please feel free to contact me at your convenience.

Sincerely,

HOELSCHER ENGINEERING, P.C.



Gary R. Hoelscher, PE, CFM
President

GRH/grh



Eastport Business Center 1
100 Lanter Court, Suite 1
Collinsville, IL 62234
Phone: 618 345-2200
Facsimile: 618 345-7233
e-mail: oai@oatesassociates.com • web-site: www.oatesassociates.com

Laclede Gas Building
720 Olive, Suite 1660
St. Louis, MO 63101
Phone: 314-588-8381
Facsimile: 314-588-8381

MINUTES OF MEETING

SUBJECT: Proposed Flood Insurance Mapping Updates

LOCATION: City Hall – Collinsville, IL

DATE: August 25, 2009 **TIME:** 10:30 am

ATTENDEES: Bob Knabel, City Manager, Collinsville
Paul Mann, Economic Development Director, Collinsville
Dave Oates, PE, Oates Associates, Inc.
Rich Wilburn, PE, Oates Associates, Inc.

PURPOSE OF MEETING: To discuss the proposed Draft Flood Insurance Rate Maps

DISCUSSION:

The purpose of this meeting was to brief City officials on what is happening with regard to the proposed FEMA floodplain maps. FEMA has issued the preliminary Flood Insurance Rate Maps for review by affected municipalities. These maps are expected to become effective in 2010, and July 22, 2009 marked the start of the regulatory 90-day appeal period. During this time, communities and individuals can appeal the proposed base flood elevations if they have detailed technical data which indicates the proposed elevations are in error. Essentially, this will require the equivalent of a certified hydraulic report which shows results which are substantially different from those shown on the proposed flood plain maps, or hydrologic studies which similarly contradict the Flood Insurance Study (FIS).

The Flood Protection District Council has hired Oates Associates and three other area drainage consultants to review the proposed floodplain maps to determine if sufficient data is available to successfully appeal the proposed elevations. We are currently reviewing past hydraulic studies and assembling those which may help form the basis for a formal appeal.

Oates advised that they have also been hired by the Cities of Edwardsville and Highland to perform a detailed review of the flood plain mapping for the major watersheds within their corporate limits and extra-jurisdictional limits.

The proposed AR Zone mapping and its possible impacts on development were discussed. The City requested Oates review EWGCOG's developed area maps to ensure the City would concur with their findings, and also to conduct an evaluation of the flood mapping elsewhere in the City

MINUTES RECORDED BY:
Rich Wilburn, PE



Eastport Business Center 1
100 Lanter Court, Suite 1
Collinsville, IL 62234
Phone: 618 345-2200
Facsimile: 618 345-7233
e-mail: oai@oatesassociates.com • web-site: www.oatesassociates.com

Laclede Gas Building
720 Olive, Suite 1660
St. Louis, MO 63101
Phone : 314-588-8381
Facsimile: 314-588-8381

MINUTES OF MEETING

SUBJECT: Flood Protection District Council Mapping Review

LOCATION: IDOT District 8 HQ – Collinsville, IL

DATE: August 21, 2009 **TIME:** 10:30 am

ATTENDEES: Frank Opfer, IDOT District 8 Hydraulics Engineer
Rich Wilburn, PE, Oates Associates, Inc.

PURPOSE OF MEETING: To determine if IDOT has hydraulic data readily available for use in the review of the proposed flood insurance study.

DISCUSSION:

Oates Associates met with Frank Opfer to discuss the availability of hydraulic report data for IDOT structures in the three subject counties. We discussed the process in general, and Frank indicated that IDOT would make any studies we needed available for review and even short term borrowing. Frank provided a list of active and completed hydraulic reports in the district, and offered additional insight into the FEMA process as a former participant in Flood Insurance Study preparation.

OA will review the list of projects, and request any additional information on particular studies which might warrant further review.

MINUTES RECORDED BY:
Rich Wilburn, PE



Eastport Business Center 1
100 Lanter Court, Suite 1
Collinsville, IL 62234
Phone: 618 345-2200
Facsimile: 618 345-7233
e-mail: oai@oatesassociates.com • web-site: www.oatesassociates.com

Laclede Gas Building
720 Olive, Suite 1660
St. Louis, MO 63101
Phone : 314-588-8381
Facsimile: 314-588-8381

MEMORANDUM

To: Project File

Date: August 25, 2009

From: Rich Wilburn, PE

Job No. 29046

Subject: Community Contacts – City of Edwardsville

Oates Associates contacted Tim Harr, Public Works Director for the City of Edwardsville regarding the proposed Flood Insurance Rate Map (FIRM) updates. Oates Associates is currently conducting an evaluation of the draft FIRM maps for the City under our existing continuing services agreement.

The current status and submittal deadlines associated with the appeals process were discussed, and we outlined our role as part of the Flood Protection District Council's engineering consultant team.

Oates Associates also advised the City of East-West Gateway's ongoing effort to prepare the developed / undeveloped area maps within the proposed AR Zone. Tim requested that Oates review EWGCOG's maps and ensure that the City's interests are adequately represented and to prepare exhibits for the City's review.

Conference & Meeting Minutes Memorandum



Project: **DFIRM Review
Southwestern Illinois Flood
Prevention District Council**

Project No: **TWM - D30-090423**

Subject: **Coordination with East St. Louis**

Authored By:

Memorandum
Issue Date: **September 4, 2009**

Conference
Date: **August 24, 2009**

Conference
Participants **Mayor Alvin Parks, Jr.
Craig Brauer**

Participant
Affiliation **City of East St. Louis
TWM, Inc.**

Thouvenot, Wade & Moerchen, Inc.

Office of Origination

☐ **Corporate Office**
4940 Old Collinsville Rd.
Swansea, IL 62226
Tel. No. (618)-624-4488
Fax No. (618)-624-6688
E-Mail: info@twm-inc.com

☒ **Waterloo Branch Office**
113 South Main Street
Waterloo, IL 62298
Tel. No. (618)-939-5050
Fax No.: (618)-939-3938
E-Mail: waterloo@twm-inc.com

☐ **Edwardsville Branch**
1015B Century Drive
Edwardsville, Illinois 62025
Tel. No. (618) 656-4040
Fax No.: (618) -656-4343
E-Mail: edwardsville@twm-inc.com

☐ **St. Louis Branch Office**
1001 Craig Rd., Suite 260
St. Louis, MO 63146
Tel. No. (314) 236-5052
Fax No.: (314) 872-2194
E-Mail: stlouis@twm-inc.com

Conference
Location: ☐ Office Visit
☐ Staff Meeting
☐ Teleconference
Phone No.
Fax No.
E-Mail
☐ Site Meeting
Location

Memo
Distributed
To:

I have been unable to have a meeting with East St. Louis to date but I did get an opportunity to discuss some issues with Mayor Parks at the Council of Mayors meeting in Dupon. The following items were discussed.

- 1) I informed Mayor Parks about TWM's scope of our services to the Flood Prevention District Council (FPD Council) and discussed what the other sub consultants' services are to the FPD Council.
- 2) I requested a meeting with himself and whom ever he felt would be appropriate from the City or other consultants that he thought would be appropriate.
- 3) Mayor Parks said that I should attend the meeting that he was hosting to discuss the AR Zone & Developed Area map issues. He also said that we could set up a meeting after that.
- 4) I asked if he knew of any flood studies that were performed in East St. Louis and if anyone was looking at those studies to review the accuracy of the DFIRM maps. He stated no and the City was focused on the AR Zone issues as well as the developed area map issues.
- 5) I discussed with Mayor Parks that the Engineering Consultants working for the FPD Council was not going to review individual letters of map changes and our review of the DFIRM maps was limited to studies that were performed by our firm.

The information presented herein represents our transcription of the discussion that was undertaken at the subject meeting. If any additions, deletions, or clarification of the transcription record are warranted, please contact TWM, Inc. within five (5) days so that the appropriate revisions can be recorded as an addendum to this document.

Conference & Meeting Minutes Memorandum



Project: **DFIRM Review
Southwestern Illinois Flood
Prevention District Council**

Project No: **TWM - D30-090423**

Subject: **Coordination with Monroe County**

Authored By:

Memorandum
Issue Date: **September 4, 2009**

Conference
Date: **August 20, 2009**

Conference
Participants **Mike Fausz
Craig Brauer**

Participant
Affiliation **Monroe County
TWM, Inc.**

**Thouvenot, Wade &
Moerchen, Inc.**

Office of Origination

☐ **Corporate Office**
4940 Old Collinsville Rd.
Swansea, IL 62226
Tel. No. (618)-624-4488
Fax No. (618)-624-6688
E-Mail: info@twm-inc.com

☒ **Waterloo Branch Office**
113 South Main Street
Waterloo, IL 62298
Tel. No. (618)-939-5050
Fax No.: (618)-939-3938
E-Mail: waterloo@twm-inc.com

☐ **Edwardsville Branch**
1015B Century Drive
Edwardsville, Illinois 62025
Tel. No. (618) 656-4040
Fax No.: (618) -656-4343
E-Mail: edwardsville@twm-inc.com

☐ **St. Louis Branch Office**
1001 Craig Rd., Suite 260
St. Louis, MO 63146
Tel. No. (314) 236-5052
Fax No.: (314) 872-2194
E-Mail: stlouis@twm-inc.com

Conference
Location: ☐ Office Visit
☐ Staff Meeting
☐ Teleconference
Phone No.
Fax No.
E-Mail
☐ Site Meeting
Location

Memo
Distributed
To:

The meeting was held to discuss TWM's involvement with the review of the DFIRM's for the Flood Prevention District Council (FPD Council). The following items were discussed:

- 1) I discussed TWM's involvement as a sub consultant to Juneau Associates, Inc. and the scope of our services and an overview of the other sub consultants' services to the FPD Council.
- 2) Mike explained that he had reviewed the DFIRM maps last year when they were sent out for public comment the first time. He stated that he did not see any significant differences from the old maps except for the Columbia bottoms where the AR Zone exists. He felt that in most cases the Flood Elevations were lower in elevation and smaller in area.
- 3) He asked whether or not these maps are the same as the prior set?
- 4) He stated that he did not believe that the County was going to make a response to the DFIRM maps unless there was any evidence of errors.
- 5) I explained that as our part of the work we are providing to the FPD Council that we would not be reviewing letters of map changes, only flood studies that we performed in the past.

The information presented herein represents our transcription of the discussion that was undertaken at the subject meeting. If any additions, deletions, or clarification of the transcription record are warranted, please contact TWM, Inc. within five (5) days so that the appropriate revisions can be recorded as an addendum to this document.

Conference & Meeting Minutes Memorandum



Project: **DFIRM Review
Southwestern Illinois Flood
Prevention District Council**

Project No: **TWM - D30-090423**

Subject: **Coordination with City of Belleville**

Authored By:

Memorandum
Issue Date: **September 4, 2009**

Conference **September 1, 2009**
Date:

Conference
Participants **Tim Gregowicz
Craig Brauer**

Participant
Affiliation **City of Belleville
TWM, Inc.**

**Thouvenot, Wade &
Moerchen, Inc.**

Office of Origination

☐ Corporate Office

4940 Old Collinsville Rd.
Swansea, IL 62226
Tel. No. (618)-624-4488
Fax No. (618)-624-6688
E-Mail: info@twm-inc.com

☒ Waterloo Branch Office

113 South Main Street
Waterloo, IL 62298
Tel. No. (618)-939-5050
Fax No.: (618)-939-3938
E-Mail: waterloo@twm-inc.com

☐ Edwardsville Branch

1015B Century Drive
Edwardsville, Illinois 62025
Tel. No. (618) 656-4040
Fax No.: (618) -656-4343
E-Mail: edwardsville@twm-inc.com

☐ St. Louis Branch Office

1001 Craig Rd., Suite 260
St. Louis, MO 63146
Tel. No. (314) 236-5052
Fax No.: (314) 872-2194
E-Mail: stlouis@twm-inc.com

Conference
Location: ☐ Office Visit
☐ Staff Meeting
☐ Teleconference
Phone No.
Fax No.
E-Mail
☐ Site Meeting
Location

Memo
Distributed
To:

The meeting was held to discuss TWM's involvement with the review of the DFIRM's for the Flood Prevention District Council (FPD Council). The following items were discussed:

- 1) I discussed TWM's involvement as a sub consultant to Juneau Associates, Inc and the scope of our services and an overview of the other sub consultant's services to the FPD Council.
- 2) Tim did not have any of the paper work from FEMA as it was sent to the Economic Development & Planning Office. Tim will get copies from that office.
- 3) Tim inquired about the availability of the map in a GIS format to an easier review by his office. I directed that question to East West Gateway as I was unsure myself.
- 4) Tim stated that as of now the City has not moved forward with a review or preparing any response to the public comment period although he said that they would.
- 5) I left copies of DFIRM maps with him for his use and told him where to find them if he needed additional copies.
- 6) Tim had several questions concerning what the city was required to do and I showed him a copy of the documentation that was sent to all municipalities in the affected counties. We discussed some of these requirements.
- 7) I informed Tim that as a part of our work for the FPD Council we will not be reviewing letters of map changes only flood studies performed by our firm.
- 8) Tim discussed that the City might send letters to property owners affected by the flood zone to inform them of the public comment period. This could only be done if the shape files of the Flood Zones are available to identify these landowners.

The information presented herein represents our transcription of the discussion that was undertaken at the subject meeting. If any additions, deletions, or clarification of the transcription record are warranted, please contact TWM, Inc. within five (5) days so that the appropriate revisions can be recorded as an addendum to this document.



THOUVENOT, WADE & MOERCHEN, INC.

TELEPHONE CONVERSATION LOG

Project:	Flood Plain Maps Review	Date:	August 09
		Time:	
Project No:	Q30-090423	Author of Log:	Craig Brauer
Call To:	Laurie Brown - Village Clerk	Call From:	
Subject:	Village of Valmeyer FEMA DFirm Maps	Local Agency/ Municipality/ Company	
		Phone No:	618-935-2131

Call Summary:

I spoke with Laurie Brown concerning the FEMA DFIRM Maps and explained the process that the FPD is undertaking and what TWM's involvement was. Laurie had many question mostly concerning what her responsibilities were and I tried to explain what the letter from FEMA stated. She also had questions concerning the comparison of the old and new maps. I printed off copies of the preliminary DRIRMS for her. I also explained what the other members of the consulting team were doing with regards to this effort.

Action Taken:



THOUVENOT, WADE & MOERCHEN, INC.

TELEPHONE CONVERSATION LOG

Project:	Flood Plain Maps Review	Date:	August 09
		Time:	
Project No:	Q30-090423	Author of Log:	Craig Brauer
Call To:	Rodney Lewis- City Planner	Call From:	
Subject:	City of Centreville FEMA DFirm Maps	Local Agency/ Municipality/ Company	
		Phone No:	618-332-1021

Call Summary:

I spoke with Rodney about the efforts of the FPD and the scope of services that we were hired to perform. Rodney's questions were about where can he obtain the GIS information. He also discussed some of their efforts to map the local flooding problems in their City. Most of these efforts are involving local ditch, culvert and storm sewer problems. I explained that the AR Zone issues are a separate effort and he could get information about that effort from the FPD. He also asked about the representation of Centreville City limits on the DFIRM maps. I explained that they appear to be the same as the St. Clair County GIS system shows the city limits which is incorrect.

Action Taken:

August 25, 2009

Community Mayor
123 Street Address
Local Community, Illinois

Re: Review of Preliminary FEMA Documents for
Local Community, Illinois

Dear Community Mayor:

Last month, Madison County communities received notice from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) that the appeal period for review of the preliminary Digital Flood Insurance Rate Maps (DFIRMs) and Flood Insurance Study (FIS) was scheduled to begin on July 22, 2009. During the statutory 90-day appeal period, which will end on October 19th, communities are given the opportunity to contest the accuracy of the DFIRMs and the FIS.

The Southwestern Illinois Flood Prevention District Council (FPD Council) has contracted with local engineering consultants to provide an overall review of the DFIRMs for Madison, St. Clair and Monroe Counties. Their task is to advise the FPD Council of discrepancies that may exist with the preliminary maps and FIS which may be useful in submitting an appeal. Considering the limited timeframe and resources available to complete this task, the report will only include the significant discrepancies noted during this review. Additionally, it is possible that this report will not include the necessary engineering hydrology and hydraulics required by FEMA to make an official appeal.

As described in the letter to you from FEMA, the individual communities are responsible for submitting DFIRM appeal requests, including those requested by their citizens. Although our consultants may identify areas within your community that have discrepancies, it can be assumed that our review will not provide a complete and thorough review of the DFIRMs for your community. For this reason, we suggest that your community consider an independent review of the preliminary documents, whether provided by in-house staff or your engineering consultant.

Your community may have already begun this process or may have questions regarding the FPD Council's work. Regardless, we feel it is essential to coordinate our work with your community for this effort. Please contact me at 618/343-9120 with any questions you may have or email me at les@FPDcouncil.org regarding the status of the appeal process for your community so we may optimize our efforts.

Respectfully submitted,

Les Sterman, Chief Supervisor of Construction
and the works

August 25, 2009

Community Mayor
123 Street Address
Local Community, Illinois

Re: Review of Preliminary FEMA Documents and AR
Flood Zone Maps for
Local Community, Illinois

Dear Community Mayor:

Last month, Madison County communities received notice from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) that the appeal period for review of the preliminary Digital Flood Insurance Rate Maps (DFIRMs) and Flood Insurance Study (FIS) was scheduled to begin on July 22, 2009. During the statutory 90-day appeal period, which will end on October 19th, communities are given the opportunity to contest the accuracy of the DFIRMs and the FIS. It should also be noted that the end of the 90-day appeal period is the deadline imposed by FEMA for submitting revisions to the developed area maps for those communities trying to secure an AR Zone designation.

The Southwestern Illinois Flood Prevention District Council (FPD Council) has contracted with local engineering consultants to provide an overall review of the DFIRMs for Madison, St. Clair and Monroe Counties. Their task is to advise the FPD Council of discrepancies that may exist with the preliminary maps and FIS which may be useful in submitting an appeal. Considering the limited timeframe and resources available to complete this task, the report will only include the significant discrepancies noted during this review. Additionally, it is possible that this report will not include the necessary engineering hydrology and hydraulics required by FEMA to make an official appeal.

As described in the letter to you from FEMA, the individual communities are responsible for submitting DFIRM appeal requests, including those requested by their citizens. Although our consultants may identify areas within your community that have discrepancies, it can be assumed that our review will not provide a complete and thorough review of the DFIRMs for your community. For this reason, we suggest that your community consider an independent review of the preliminary documents, whether provided by in-house staff or your engineering consultant.

The developed area maps presented to FEMA for the requested temporary AR Flood Zone were prepared by East West Gateway (EWG). While EWG considers these maps to be representative of the developed areas located within your community, they should be verified by your in-house staff or your engineering consultant prior to acceptance of the map. It should be noted that parcels identified on these maps as "undeveloped" will be imposed a much stricter development criteria than those defined as "developed" parcel and may be prohibitive to develop as such.

Your community may have already begun this review or may have questions regarding the FPD Council's work. Regardless, we feel it is essential to coordinate our work with your community for this effort. Please contact me at 618/343-9120 with any questions you may have or email me at les@FPDcouncil.org regarding the status of the appeal process for your community so we may optimize our efforts.

Respectfully submitted,

Les Sterman, Chief Supervisor of Construction
and the works